

How Did You Get To Hawai'i?

Next Generation Science Standards:

- K-ESS3-1 Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.
- 2-LS2-2 Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

Hawai'i Content and Performance Standards III:

- SC.K.1.2 Ask questions about the world around them.
- SC.K.3.1 Identify similarities and differences between plants and animals.
- SC.1.2.2 Describe a variety of changes that occur in nature.
- SC.2.3.1 Describe how animals depend on plants and animals.
- SC.2.5.1 Identify distinct environments and the different kinds of organisms each environment supports.

Description:

Native species are those that reached the islands without the help of people. Many of our native plants and animals occur nowhere else in the world! In this activity, students learn how the different characters (species) in the story could reach the isolated Hawaiian Islands. The class is divided into the different ways that species arrived (4 groups): fly, swim, ride on the wind, and waves. As the story is read, students try to figure out how each new plant or animal reached the island.

Duration: 45 minutes

Objectives: At the end of this lesson, the students will be able to:

- Recognize that some plants and animals have specific needs and live in special homes that give them what they need.
- Understand the difference between native and non-native species.
- Name three species that are only found within Haleakalā National Park.

Background:

The native plants and animals in this story reached the islands largely by chance. The kōlea or Pacific golden plover is capable of flying long distances over water without stopping. Each August the birds leave their breeding grounds in Alaska and fly to Hawai'i. They make this incredible flight in only 72 hours and many birds return to the same field year after year. In April the birds return to their northern breeding grounds.

The tiny happy-faced spider reached the islands by a less direct method. It produces strands of silk that catch the wind and carry the spider to new locations. This mode of transport, called ballooning, is how scientists believe the happy-face spider reached Hawai'i.

Land snails are not long-distance travelers, yet some species managed to reach the islands without human assistance. They have a mobile home that protects them from the elements and they are capable of adhering to surfaces, such as logs or birds' feathers. Scientists believe land snails probably reached the islands by adhering to a mass of vegetation that drifted in ocean currents. Some snails may have arrived on the feathers of a bird.

Some plants may have reached the islands in a bird's digestive tract, others may have floated on the wind. Koa and 'ōhi'a are common native forest trees in Hawai'i. In the story the seeds are dispersed by the kōlea (Pacific golden plover).

The skink (lizard) that appears in the story represents one of the small animals that probably arrived as a stowaway on a Polynesian canoe. Four gecko and three skink species were known to have reached the islands before the arrival of Europeans.

Vocabulary:

Native: Plants and animals that got to Hawai'i by themselves, without the help of people.

Non-native: Plants and animals that are brought to an area by people, either on purpose or accidentally.

Species: A plant, animal, or insect.

Materials Needed:

Story (included)

Student Worksheet (included)

Coloring Supplies

Procedure:

Step 1: Introduction

Discuss how different species may have made it to the islands on their own.

Explain that native species reached the islands without the help of people.

Explain that many of our native plants and animals are found nowhere else in the world!

Step 2: Instructions for the Story

Divide the class into 4 groups: fly, swim, ride on the wind, and waves. Assign a line of the story's poem and its accompanying hand motions to each group.

Group 1: "DID YOU FLY?" (flap hands)

Group 2: "DID YOU SWIM?" (move arms in swimming strokes)

Group 3: "DID YOU RIDE ON THE WIND?" (move arms from side to side)

Group 4: "DID THE WAVES BRING YOU IN?" (move hands in a wave motion)

This is a story that is told by Old King Koa Tree. It is a story about how some of the plants and animals came to the Hawaiian Islands out in the middle of the sea. King Koa wants us to help him tell the story. So whenever he says, "ALOHA, FOREST FRIEND. HOW DID YOU REACH THE ISLAND?" We will take turns saying our group's question. I will point to your group and you will say your line and do your hand motions. Practice with each of the four groups by saying the line: "ALOHA, FOREST FRIEND. HOW DID YOU REACH THE ISLAND?" and point to each group.

Step 3: Read the story

ALOHA, FOREST FRIENDS

A long time ago I landed on an island in the middle of the sea. My mother the koa log had floated over the waves. One of her branches held seeds in a protective pod above the water. When she reached the islands, big storm waves pushed her trunk way up onto the land, and my seed fell to the ground. I grew into a big koa tree. I had strong branches, but no insects or birds came to keep me company. And no plants came to grow in my shade. I was all alone.

One day a big storm cloud blew in over the ocean. The waves crashed on the shore! The wind howled and tossed my branches. The rain lasted all day and night. When the sun rose the next day, I had a big surprise. I felt a little tickle on my leaves. There was a tiny spider in my branches. He looked like he was smiling. I said, "ALOHA FOREST FRIEND. HOW DID YOU REACH THE ISLAND?" (Point to each group one at a time)

Group 1: "DID YOU FLY?" (flap hands)

Group 2: "DID YOU SWIM?" (move arms in swimming strokes)

Group 3: "DID YOU RIDE ON THE WIND?" (move arms from side to side)

Group 4: "DID THE WAVES BRING YOU IN?" (move hands in a wave motion)

What do you think the spider said? (It came on a strand of silk that blew in the wind).

I was happy to have some company. Especially such a smiley friend. The happy-face spider and I also noticed some tiny seeds on the ground. Happy-face showed me how to juggle the seeds. He told jokes too and we laughed together. We watched one of the seeds grow into a beautiful 'ōhi'a tree with red flowers. I said, "ALOHA FOREST FRIEND. HOW DID YOU REACH THE ISLAND?" (Each group says their question). How do you think the tree reached the island? (Its tiny seed blew on the wind).

‘Ōhi‘a was strong and wise. I asked her to be our queen. Happily, she agreed. When the rains came she grew more beautiful than ever with red flowers covering her crown. But the happy-face spider didn’t like the rain. He tried to stay dry under my leaves, but they were too long and thin. He tried ‘ōhi‘a leaves but they were no better, they were too small. Happy-face couldn’t stay dry. He stopped telling jokes and I rarely saw him juggle. I knew the rainy season would be with us for a while, but we didn’t know how to help our little forest friend.

When the next big storm blew in, I tried to shelter happy-face from the rain. He clung to my leaves. But as the wind blew and the rain poured down, he got wet and cold. When the sun came out, I saw a shiny fish in the sea and a new log on the beach. A tiny snail made its way off the log and came to visit the forest. I said, “ALOHA FOREST FRIEND. HOW DID YOU REACH THE ISLAND?” (Each group says their question). What do you think the fish and the snail said? (The fish swam, the snail floated over the waves on the log).

The snail’s hard shell had protected her from the salty sea. It had been a long journey. The waves had tossed her log raft all about and she was tired. She fell asleep on Queen ‘Ōhi‘a. When she woke up she began to clean the Queen’s leaves. We were glad to have such a helpful new forest friend.

I wondered if anyone else had come in on that log. Happy-face wondered too and off he went to have a look. While he was gone, the rain cloud came back. It started to pour. How would happy-face stay dry? When night came he had still not returned. We worried and wondered if he could ever come back. What if the big waves washed him out to sea? The next day was bright and sunny. A new forest friend named skink came to visit. We heard him crackle over the leaves. He was a fast mover and he almost slipped right by me but I stopped him and said, “ALOHA FOREST FRIEND. HOW DID YOU REACH THE ISLAND?” (Each group says their question). What do you think the skink said? The skink told us that it wasn’t the waves, wind, or wings that carried him to our island but that he had come on a canoe. Then off he went slinking through the forest.

Finally, happy-face returned. He was so tired. He had gotten soaked in the rain and he wanted a dry home! But he had some exciting news! He had met a new friend near the beach. She had long legs and a long beak. I looked out and saw a kōlea, a golden bird, cleaning its feathers. I called out, “ALOHA FOREST FRIEND. HOW DID YOU REACH THE ISLAND?” (Each group says their question). What do you think the kōlea said? (It flew).

Soon after the kōlea arrived, we noticed a new plant with big leaves and large red berries growing near Queen ‘Ōhi‘a. Inside the red berries were many seeds. I greeted the plant, “ALOHA FOREST FRIEND. HOW DID YOU REACH THE

ISLAND?" (Each group says their question). How do you think the new plant got to the island? (Its berries may have been carried inside the kōlea)

The happy-face spider went to visit the plant and was overjoyed to find such wonderful big leaves. They made a perfect roof to keep him dry. When the rainy season came, he looked as happy as a happy-face spider could be! I was happy too, Queen 'Ōhi'a and I knew we'd never be alone again. Over the waves and on the wind new friends would come to our island.

THE END

Step 4: Discuss story

Summarize by having students identify some of the native plants and animals in the story and the non-native species (skink).

- Koa = Dominant native tree species in many Hawaiian forests. It is primarily found between 1,500-4,000 feet. Koa is endemic (native and unique) to the Hawaiian Islands.
- Happy-face spider = One of the many native creatures that inhabit Hawaiian forests. These pale, green semi-translucent spiders are about 1 inch long from toe to toe. The happy-face markings actually appear on the spider's abdomen, and come in a variety of patterns. The happy-face spider lives on the undersides of leaves where its color, size, and unusual marking help to hide it from hungry birds.
- 'Ōhi'a = Native forest tree with pompom like flowers which are a favorite source of food for many native Hawaiian forest birds.
- Kōlea = A native bird that migrates between Alaska and Hawai'i.
- Snail = There are a few native snails that arrived here on their own and made their homes in the Hawaiian rain forest. Today there are also lots on nonnative snails that were brought to Hawai'i by people.

Step 5: Complete Worksheet

Distribute the student worksheet. Ask students to identify the missing body parts. Have them connect the dots to complete the pictures. Have the students color the animals:

- Spider = yellowish green
- Kōlea = brown with gold spots with a black beak & legs
- Skink = brown
- Snail = black or tan with any color shell
- Fish = yellow

Habitat Unit
Haleakalā National Park

Reference: Adapted from 'Ōhi'a Project. (1989). Aloha, forest friends. *An environmental education guidebook for Hawai'i* (pp. 102-111). Honolulu, HI: Bernice Pauahi Bishop Museum and Moanalua Gardens Foundation.

Animals Worksheet

